

AUG 20 2007

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A semiconductor substrate processing apparatus, comprising:

a frame;

a substrate support mounted to the frame to support a semiconductor substrate;

a dispense head, having at least one outlet opening, connected to the frame for movement relative to the semiconductor substrate;

a solvent bath attached to the frame having a reservoir and a drain, the reservoir holding a first fluid, the solvent bath shaped such that when the dispense head is in a selected position in the solvent bath, a second fluid dispensed from the at least one outlet opening enters the drain without mixing with the first fluid in the reservoir, while the at least one outlet opening is exposed to air saturated with vapor of the first fluid in the reservoir,

wherein the solvent bath includes a recess for the dispense head to engage the solvent bath such that a fit of the dispense head into the recess substantially seals the solvent bath such that only a minimal amount of the saturated air escapes therethrough,

wherein the dispense head is moveable between a first position and a second position relative to the semiconductor substrate,

wherein when the dispense head is in the first position the second fluid dispensed from the at least one outlet opening flows onto the semiconductor substrate and the second position is the selected position,

wherein the dispense head further comprises at least one nozzle, the at least one outlet opening being at an end thereof; and

wherein the solvent bath further comprises a casing having a chamber therein and an opening connected to the chamber and sized to fit the at least one nozzle of the dispense head,

wherein the recess helps guide the dispense head into position, when the dispense

head is slightly misaligned in the second position, without a tip of the at least one nozzle of the dispense head contacting the opening in the casing sized to fit the at least one nozzle of the dispense head.

2. – 6. (Cancelled)

7. (Previously Presented) The semiconductor substrate processing apparatus of claim 1, wherein the nozzle does not contact the first fluid held in the reservoir.

8. (Previously Presented) The semiconductor substrate processing apparatus of claim 7, wherein when the dispense head is in the second position, a fit between the dispense head and the opening substantially seal the chamber.

9. (Original) The semiconductor substrate processing apparatus of claim 8, wherein the casing further comprises a base, a side wall, and a top piece.

10. (Original) The semiconductor substrate processing apparatus of claim 9, wherein the drain and the reservoir are attached to the base of the casing, the opening is in the top piece of the casing, and the side wall interconnects the base and the top piece.

11. (Original) The semiconductor substrate processing apparatus of claim 10, further comprising a funnel structure connected to the drain.

12. (Original) The semiconductor substrate processing apparatus of claim 11, wherein the funnel structure is circularly symmetric and concentric with the drain.

13. (Original) The semiconductor substrate processing apparatus of claim 12, wherein the reservoir surrounds the funnel structure.

14. (Original) The semiconductor substrate processing apparatus of claim 13, wherein the first fluid and the second fluid are liquids.

15. (Original) The semiconductor substrate processing apparatus of claim 14, wherein the first fluid and the second fluid have at least one component in common.

16. (Original) The semiconductor substrate processing apparatus of claim 15, wherein the first fluid and the second fluid are semiconductor processing liquids.

17. (Original) The semiconductor substrate processing apparatus of claim 16, wherein the first fluid is a solvent and the second fluid is photoresist.

18. (Previously Presented) A semiconductor substrate processing apparatus, comprising:
a frame;
a substrate support mounted to the frame to support a semiconductor substrate;
a dispense head, having at least one outlet opening, connected to the frame and being moveable between a first and a second position relative to the substrate support, the at least

one outlet opening being exposed to a first medium when the dispense head is in the first position; and

a solvent bath attached to the frame having a reservoir and a drain, the reservoir holding a first fluid, the solvent bath shaped such that when the dispense head is in a second position in the solvent bath, a second fluid dispensed from the at least one outlet opening enters the drain without mixing with the first fluid in the reservoir, while the at least one outlet opening is exposed to a air saturated with vapor of the first fluid in the reservoir,

wherein the solvent bath includes a recess for the dispense head to engage the solvent bath such that a fit of the dispense head into the recess substantially seals the solvent bath such that only a minimal amount of saturated air escape therethrough,

wherein when the dispense head is in the first position, the second fluid is dispensed from the at least one outlet opening flows onto the semiconductor substrate,

wherein the dispense head further comprises at least one nozzle, the at least one outlet opening being at an end thereof,

wherein the recess helps guide the dispense head into position, when the dispense head is slightly misaligned in the second position, without a tip of the at least one nozzle of the dispense head contacting the recess in the solvent bath,

wherein the nozzle does not contact the first fluid held in the reservoir;

wherein when the dispense head is in the second position substantially no saturated air leaves the solvent bath through an opening in a casing of the solvent bath;

wherein the solvent bath further comprises a base, a side wall, and a top piece;

wherein the drain and the reservoir are attached to the base of the solvent bath, the opening is in the top piece of the solvent bath, and the side wall interconnects the base and the top piece;

wherein the solvent bath further comprises a funnel structure connected to the drain,
the funnel structure being circularly symmetric and concentric with the drain.

19. – 26. (Cancelled)

27. (Currently Amended) The semiconductor substrate processing apparatus of claim 18
26, wherein the reservoir surrounds the funnel structure.

28. (Previously Presented) An apparatus comprising:

a casing having a chamber therein and an opening connected to the chamber and sized
to fit at least one nozzle of a dispense head;

a reservoir within the chamber to hold a fluid; and

a drain within the chamber positioned relative to the opening such that when the at
least one nozzle of the dispense head is inserted into the opening a liquid dispensed from the
at least one nozzle enters the drain without mixing with the fluid in the reservoir, while the at
least one nozzle is exposed to air in the chamber saturated with vapor of the fluid held in the
reservoir,

wherein the chamber includes a recess for the dispense head to engage the chamber
such that a fit of the dispense head into the recess substantially seals the chamber such that
only a minimal amount of saturated air escape therethrough,

wherein the casing further comprises a base, a side wall, and a top piece,

wherein the drain and the reservoir are attached to the base of the casing, the opening
is in the top piece of the casing, and the side wall interconnects the base and the top piece,

wherein the base of the casing further comprises a funnel structure connected to the drain, the funnel structure being circularly symmetric and concentric with the drain.

29. – 31. (Cancelled)

32. (Previously Presented) The apparatus of claim 28, wherein the reservoir surrounds the funnel structure.

33. – 42. (Cancelled)

43. (Previously Presented) The apparatus of claim 28, wherein the recess helps guide the dispense head into position, when the dispense head is slightly misaligned in the second position, without a tip of the at least one nozzle of the dispense head contacting the opening in the top piece of the casing

44. (Previously Presented) The apparatus of claim 28, wherein the depth of the recess is approximately equal to the opening in the top piece of the casing.

45. (Currently Amended) A semiconductor substrate processing apparatus, comprising:
a frame;
a substrate support mounted to the frame to support a semiconductor substrate;
a dispense head, having at least one outlet opening, connected to the frame for movement relative to the semiconductor substrate;
a solvent bath attached to the frame having a reservoir and a drain, the reservoir holding a first fluid, the solvent bath shaped such that when the dispense head is in a selected

position in the solvent bath, a second fluid dispensed from the at least one outlet opening enters the drain without mixing with the first fluid in the reservoir, while the at least one outlet opening is exposed to air saturated with vapor of the first fluid in the reservoir,

wherein the solvent bath includes a recess for the dispense head to engage the solvent bath such that a fit of the dispense head into the recess substantially seals the solvent bath such that only a minimal amount of the saturated air escapes therethrough,

wherein the dispense head is moveable between a first position and a second position relative to the semiconductor substrate,

wherein when the dispense head is in the first position the second fluid dispensed from the at least one outlet opening flows onto the semiconductor substrate and the second position is the selected position,

wherein the dispense head further comprises at least one nozzle, the at least one outlet opening being at an end thereof;

wherein the solvent bath further comprises a casing having a chamber therein and an opening connected to the chamber and sized to fit the at least one nozzle of the dispense head,

wherein the nozzle does not contact the first fluid held in the reservoir,

wherein when the dispense head is in the second position, a fit between the dispense head and the opening substantially seal the chamber,

wherein the casing further comprises a base, a side wall, and a top piece,

wherein the drain and the reservoir are attached to the base of the casing, the opening is in the top piece of the casing, and the side wall interconnects the base and the top piece;
and

a funnel structure connected to the drain.

46. (Previously Presented) The semiconductor substrate processing apparatus of claim 45, wherein the funnel structure is circularly symmetric and concentric with the drain.

47. (Previously Presented) The semiconductor substrate processing apparatus of claim 46, wherein the reservoir surrounds the funnel structure.

48. (Previously Presented) The semiconductor substrate processing apparatus of claim 47, wherein the first fluid and the second fluid are liquids.

49. (Previously Presented) The semiconductor substrate processing apparatus of claim 48, wherein the first fluid and the second fluid have at least one component in common.

50. (Previously Presented) The semiconductor substrate processing apparatus of claim 49, wherein the first fluid and the second fluid are semiconductor processing liquids.

51. (Previously Presented) The semiconductor substrate processing apparatus of claim 50, wherein the first fluid is a solvent and the second fluid is photoresist.

52. (Previously Presented) The semiconductor substrate processing apparatus of claim 45, wherein the recess helps guide the dispense head into position, when the dispense head is slightly misaligned in the second position, without a tip of the at least one nozzle of the dispense head contacting the opening in the casing sized to fit the at least one nozzle of the dispense head.

53. (Previously Presented) The semiconductor substrate processing apparatus of claim 45, wherein the depth of the recess is approximately equal to the opening in the top piece of the casing.

54. (Previously Presented) A semiconductor substrate processing apparatus, comprising:
a frame;

a substrate support mounted to the frame to support a semiconductor substrate;

a dispense head, having at least one outlet opening, connected to the frame and being moveable between a first and a second position relative to the substrate support, the at least one outlet opening being exposed to a first medium when the dispense head is in the first position;

a solvent bath attached to the frame having a reservoir and a drain, the reservoir holding a first fluid, the solvent bath shaped such that when the dispense head is in a second position in the solvent bath, a second fluid dispensed from the at least one outlet opening enters the drain without mixing with the first fluid in the reservoir, while the at least one outlet opening is exposed to a air saturated with vapor of the first fluid in the reservoir,

wherein the solvent bath includes a recess for the dispense head to engage the solvent bath such that a fit of the dispense head into the recess substantially seals the solvent bath such that only a minimal amount of saturated air escape therethrough,

wherein when the dispense head is in the first position, the second fluid is dispensed from the at least one outlet opening flows onto the semiconductor substrate,

wherein the dispense head further comprises at least one nozzle, the at least one outlet opening being at an end thereof,

wherein the nozzle does not contact the first fluid held in the reservoir,

wherein when the dispense head is in the second position substantially no saturated air leaves the solvent bath through an opening in a casing of the solvent bath,

wherein the solvent bath further comprises a base, a side wall, and a top piece,

wherein the drain and the reservoir are attached to the base of the solvent bath, the opening is in the top piece of the solvent bath, and the side wall interconnects the base and the top piece; and

a funnel structure connected to the drain, the funnel structure being circularly symmetric and concentric with the drain.

55. (Previously Presented) The semiconductor substrate processing apparatus of claim 54, wherein the reservoir surrounds the funnel structure.

56. (Previously Presented) The semiconductor substrate processing apparatus of claim 54, wherein the recess helps guide the dispense head into position, when the dispense head is slightly misaligned in the second position, without a tip of the at least one nozzle of the dispense head contacting the recess in the solvent bath.

57. (Previously Presented) The semiconductor substrate processing apparatus of claim 54, wherein the depth of the recess is approximately equal to the opening in the top piece of the casing.